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10/552,078	10/04/2005	Arnoldus Werner Johannes Oomen	NL 030354	6681
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EXAMINER				
PULLIAS, JESSE SCOTT				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/552,078

**Applicant(s)**OOMEN, ARNOLDUS WERNER  
JOHANNES**Examiner**

JESSE S. PULLIAS

**Art Unit**

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/21/2006, 10/04/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 03/21/2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.
2. The information disclosure statement filed 03/24/2006 is a duplicate of the one filed 03/21/2006 and the information referred to therein has not been considered.

### ***Drawings***

1. Figures 1-5, 8, and 9 are objected to because there are no textual labels. Appropriate correction is required.

### ***Claim Objections***

2. Claims 1, 9, 17, 27, and 28 are objected to because of the following informalities: In claim 1, lines 1 and 4, "buried data channel (30, 32, 34, 36)" refers to multiple components that are not further identified. Similar instances can be found in claims 9, 17, 27, and 28. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claim 3 recites the limitation "the number" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 27 is rejected under 35 U.S.C. 101 because the claimed invention is directed to a signal, which is non-statutory subject matter.

Claim 28 is rejected under 35 U.S.C. 101 because the claimed invention is directed to a signal recorded on a medium, which is non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 9-11, 17, 19, 24, 25, 27, and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Tachibana et al (6,985,590).

Consider claims 1 and 17, Tachibana discloses allowing variation of data in a buried data channel (**Abstract lines 1-3**, embedded data can be operated) provided in a media signal (**Abstract lines 1-2**, digital audio data), which comprises at least one set of audio samples of digital audio information (**Col 6 lines 64-65**), comprising the steps of:

providing a buried data channel having a certain spectral shape in the audio samples of the media signal (**Col 6 lines 38-40**, the embedded, or buried data channel, is calculated according to a psychoacoustic model, so it necessarily has a certain spectral shape),

inserting payload data in the buried data channel (**Col 1 lines 7-10**, additional information such as copyright information makes up the payload data), and inserting information corresponding to the spectral shape of the buried data channel into the buried data channel (**Col 4 lines 31-40**, an embedded frequency signal, which is information corresponding to the spectral shape of the buried data, is transformed into a MDCT coefficient and added, which inserts it).

With regard to claims 9 and 24, Tachibana discloses varying data buried in a media signal (**Abstract lines 1-3**, embedded data can be operated) comprising at least one set of audio samples of digital audio information (**Col 6 lines 64-65**), comprising the steps of:

extracting information corresponding to the spectral shape of a buried data channel from said buried data channel, (**Col 15 lines 50-60**, MDCT coefficients,

which are information corresponding to the spectral shape of a buried data channel, are recovered, or extracted)

wherein the channel comprises payload data and is provided in at least some of the audio samples, (**Col 15 lines 61-65**, additional information, or payload data, is embedded, or buried in the signal)

updating the payload data, (**Col 16 lines 1-2**, updating of the additional information, or payload data, is performed)

inserting data including the updated payload data in at least some audio samples (**Col 16 lines 5-15**, the updated frequency components (containing the updated payload data), are transformed and compressed, effectively inserting them into the audio data) and

using said spectral shape information for modifying the spectral shape of the data in the buried data channel having the updated payload data. (**Col 15 line 55 - Col 16 line 5**, the coefficients, or spectral shape information, which are transformed into frequencies and used by the frequency domain updating unit to update the additional information's frequencies, or modify the spectral shape).

With respect to claims 27 and 28, they contain a media signal and recorded medium comprising a media signal, containing elements from claim 1, and are rejected for similar reasons.

Consider claim 2, Tachibana discloses the information corresponding to the spectral shape is digital (**Col 4 lines 31-40**, the MDCT, transforms a digital time-domain signal to a digital frequency domain representation by producing digital coefficients).

Consider claims 3, 11, and 19, Tachibana discloses the information corresponding to the spectral shape of the buried data channel comprises information about the number of coefficients (**Col 7 lines 4-11**).

With respect to claims 10 and 25, Tachibana discloses the step of extracting payload data in the buried data channel (**Col 15 lines 42-45**, a detector detects and outputs, or extracts, the additional information, or payload data).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 5-8, 12, 14-16, 18, 21-23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tachibana et al (6,985,590) in view of Neubauer et al (6,584,138).

Regarding claim 5, Tachibana discloses determining a masked error spectrum for the buried data channel, **(Col 6 lines 39-41**, an auditory psychological model is employed for embedding)  
determining a correlation table **(Col 6 lines 56-60)**  
determining a number of bits to be inserted in at least one audio sample, **(Col 4 lines 1-7)** and  
providing said correlation table to a transformer for transforming **(Col 15 lines 56-60)**.

Tachibana does not specifically teach determining filter coefficients based on the masked error spectrum, and providing said coefficients to a filter for providing the spectral shape of the buried data channel.

Neubauer discloses determining filter coefficients based on a masked error spectrum, **(Col 10 lines 50-55)** and providing said coefficients to a filter for providing the spectral shape of the buried data channel **(Col 12 lines 29-34, lines 43-44**, the weighting is a filter, and the weighted useful signal is the buried data channel).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tachibana by substituting the disclosed



table with a filtering operation as taught by Neubauer, in order to save memory, as suggested by Neubauer (**Col 1 line 66 - Col 2 line 1**).

Regarding claims 6, 7, 18, and 21, Tachibana discloses detection in the frequency domain and the detection of bit information and a code signal, or buried data channel (**Col 5 lines 1-3**). The buried data channel comprising a header and inserting the information in the header of the buried data channel is not specifically mentioned, nor is the step of inserting synchronization and allocation information.

Neubauer discloses a buried data channel comprising a header inserting information in the header of the buried data channel (**Col 11 lines 17-25**, the transmission channel carries the inaudible, or buried, data. HDLC protocol includes a header carrying information) as well as the step of inserting synchronization and allocation information (**Col 11 lines 17-25**, HDLC protocol includes synchronization and allocation information in the header).

With respect to claim 15, the information is extracted during the decoding process (**See Col 13 lines 39-46 and lines 53-67**).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tachibana by using HDLC as taught by Neubauer, in order save processing power, as suggested by Neubauer (**Col 11 lines 14-15**).

Consider claims 8 and 22, Tachibana does not specifically disclose the step of randomizing data to be inserted in the buried data channel in the form of dither coded for allowing decoding in order to retrieve the data.

Neubauer discloses the step of randomizing data to be inserted in the buried data channel in the form of dither coded (**Col 11 lines 46-50**, pseudo-noise, or randomized data in the form of dither, is inserted) with a reversible coding function (**Col 13 lines 26-27**, Filter 408 contains as coefficient the inverse sequence of the PN sequence at the transmitter) for allowing decoding in order to retrieve the data (**Col 11 lines 56-57**, the sequence must be known at the decoder).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tachibana to include the step of randomizing data to be inserted in the buried data channel in the form of dither coded with a reversible coding function, as taught by Neubauer, in order to protect data, as suggested by Neubauer (**Col 2 lines 4-8**).

With respect to claims 12, 23, and 26, Tachibana discloses using spectral shape information for modifying the spectral shape of the data in the buried data channel having the updated payload data (**Col 15 line 55 - Col 16 line 5**, the coefficients, or spectral shape information, which are transformed into

frequencies and used by the frequency domain updating unit to update the additional information's frequencies, or modify the spectral shape).

Tachibana does not specifically mention a noise shaping filter. Neubauer discloses a noise shaping filter (**Col 11 lines 46-50**, noise is generated, **Col 12 lines 29-34**, the noise is weighted, or shaped).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tachibana to include a noise shaping filter as taught by Neubauer, in order to make the data imperceptible to the human ear, as suggested by Neubauer (**Col 12 lines 32-34**).

Regarding claim 16, Tachibana discloses the step of extracting includes decoding data (**Col 15 lines 50-55**) and further including the step of coding the data including the updated payload data with a frequency domain updating unit (**Col 15 lines 61-67**) before the step of inserting the data in the audio samples (**Col 16 lines 11-16**).

Tachibana does not specifically mention the originally provided data in the buried data channel is provided as reversibly coded dither for allowing retrieval of data.

Neubauer discloses the originally provided data in the buried data channel is provided as reversibly coded dither (**Col 11 lines 46-57**, pseudo-noise, or dither, is reversibly coded, since the decoder needs to know the sequence) for allowing retrieval of data and the steps of extracting includes

decoding the dither (**Col 13 lines 25-28**, a filter with the inverse sequence is used in decoding).

Neubauer does not specifically mention coding the data including the updated payload data with a dither function before the step of inserting the data in the audio samples.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tachibana by using dither as taught by Neubauer in the embedding and updating processes, in order to protect data, as suggested by Neubauer (**Col 2 lines 4-8**).

10. Claims 4, 13, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tachibana et al (6,985,590) in view of Neubauer et al (6,584,138), in further view of Aguilar et al (7,272,556).

Regarding claims 4, 13, 14, and 20, neither the Tachibana nor Neubauer reference specifically mentions that the coefficients are represented as quantized log-area ratio (LAR) coefficients. Aguilar discloses the coefficients are represented as quantized log-area ratio coefficients (**Col 38 lines 8-12**, the LAR coefficients are another domain).

It would have been obvious to one of ordinary skill in the art to modify the invention of Tachibana and Neubauer by representing the coefficients as quantized log-area ratio coefficients, as it was well known in the art that LAR

coefficients are less sensitive to quantization errors. The inventions are analogous because they are related to encoding audio signals and information.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. 6,452,960 Sato discloses an audio data transmission apparatus in which gaps in the audio data are used for adding spectrally shaped data to the signal
- b. 5,991,716 Lehtimäki discloses a transcoding system that updates a data signal while avoiding tandem coding
- c. 6,633,840 Bonnard et al. disclose a method and system for transmitting data on a speech channel that updates auxiliary data during transcoding
- d. 6,240,121 Senoh discloses an apparatus and method for watermark insertion and detection in which a watermark is inserted in the frequency domain based on pseudo random numbers
- e. 5,212,551 Conanen discloses a method and apparatus that adaptively superimposes data signals representing text onto an audio signal
- f. 6,748,362 Meyer et al. disclose a method and system for embedding data in compressed audio in which data bits are embedded in coefficients of a frequency domain representation of the audio signal

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse Pullias whose telephone number is 571/270-5135. The examiner can normally be reached on M-F 9:00 AM - 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571/272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571/270-6135.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jesse S Pullias/

Examiner, Art Unit 2626

/Talivaldis Ivars Smits/

Primary Examiner, AU 2626

3/4/2008